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FEBRUARY 27TH, 1854.

THOMAS ROMNEY ROBINSON, D.D., PRESIDENT,  
in the Chair.

THE Secretary read a paper, by George James Knox, Esq.,  
on the transmutation of metals.

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Mr. Thomas Grubb read the following account of a new method of determining, approximately, the spherical aberration of a combination of lenses for microscopic purposes :—

“ The methods hitherto at our option for investigating the spherical aberrations of a system of lenses, having spherical surfaces, are—firstly, the purely mathematical, involving (where the thickness of the lenses is required to be included, and more especially where the angle of aperture is considerable) such intricacy in the calculations as renders the process nearly useless to practical persons; and, secondly, the more practical method of constructing diagrams of large size, in which two or more rays, at different distances from the axis of the compound, are geometrically traced, according to the laws of optics.

“ Much of my leisure time has, for several years, been devoted to inquiries including, necessarily, the construction of such diagrams; and I cannot speak too highly of their value in giving to the experimenter in optics a thorough practical insight into the effects of the various forms and combinations which will be suggested, more especially when the improvement of the compound objective of the microscope is under consideration.

“ It may be desirable here to state, that these diagrams were usually drawn on a scale ten times that intended for use, the radii of the arcs, from which the sines were measured